APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,852	03/29/2004	Kozo Okuda	33240M0091	9125

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EXAMINER
BRINEY III, WALTER F

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)	
Office Action Summary	10/810,852	OKUDA ET AL.	
	Examiner	Art Unit	
	Walter F Briney III	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 March 2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☒ Certified copies of the priority documents have been received in Application No. <u>09/605,415</u>.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>29 March 2004</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 20050214

DETAILED ACTION

Priority

Applicant is reminded that in order for a patent issuing on the instant application

to obtain the benefit of priority based on priority papers filed in parent Application No.

09/605,415 under 35 U.S.C. 119(a)-(d) or (f), a claim for such foreign priority must be

timely made in this application. To satisfy the requirement of 37 CFR 1.55(a)(2) for a

certified copy of the foreign application, applicant may simply identify the application

containing the certified copy.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a
person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived
by the manner in which the invention was made.

1.   **Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michel et al. (US**

Patent 6,041,118) in view of Nejime et al. (US Patent 5,717,818).

Claim 1 is limited in part to a speech communication apparatus comprising a

voice input device, a voice output device, a signal I/O means for sending input voice to

a telephone line and receiving voice from a called party, and a sidetone erasure means.

The Michel reference discloses a speech communication apparatus with a handset mic

for voice input and an earpiece for outputting received voice (figure 4 MIC and RCVR),

a pair of codec devices serves to transmit the input voice from the mic to a telephone

line and a received voice signal from the telephone line to the receiver speaker, an

adaptive filter is included to remove reflected interference, known as sidetone (column 4

under Adaptive Filter), and Michel also includes a DSP for further voice processing after

the echo canceller (column 4 under Digital Signal Processing Block and figure 4).

Therefore, it can be seen that the Michel reference discloses all the elements of the

claim except a voice speed conversion means for changing the timescale of the inputted

voice signal. Nejime teaches a device of speech speed conversion (i.e. voice speed

conversion), which modifies the speed of input speech without changing the pitch

(column 2, lines 41-48) so that people with hearing disabilities receive a benefit (column

1) from using the phone (column 6, lines 8-11). It would have been obvious to one of

ordinary skill in the art at the time of the invention to use the DSP of Michel as a speech

speed conversion means, and thus enabling hearing-impaired people to use the

telephone as taught by Nejime.

Claim 3 is limited to the speech communication apparatus according to claim 1,

and as covered by Michel in view of Nejime, wherein the sidetone erasure means

comprises means for referring to the voice signal of the calling party which has been

outputted from the voice input device to generate a pseudo sidetone signal, and means

for erasing, from a mixture of the voice signal of the called party which arrives through

the telephone line and a sidetone signal, the sidetone signal using the pseudo sidetone

signal. The primary reference Michel discloses a speech communication apparatus that

has an adaptive filtering unit that is used for removing reflected interference, otherwise

known as sidetone. That adaptive filter, or sidetone erasure means, is described fully in

column 4 under the Adaptive Filter heading and as seen in figure 4, element 33. It has

an input 4 from the DSP that serves as the input speech reference, and as can be seen

the pseudo sidetone is summed with the received signal 3 removing the reflected

interference from the received signal.

Claim 5 is limited to the speech communication apparatus according to claim 1,

and as covered by Michel in view of Nejime, wherein the voice speed conversion means

changes the time scale of the voice signal of the called party. Nejime discloses a

speech speed conversion (i.e. voice speed conversion means) that modifies the speed

of an input waveform, thus modifying the timescale of a voice through expansion and

reduction (column 3, lines 3-22).

Claim 7 is limited to the speech communication apparatus according to claim 1,

and as covered by Michel in view of Nejime, wherein the voice speed conversion means

changes the time scale of the voice signal of the called party. Nejime discloses a

speech speed conversion (i.e. voice speed conversion means) that modifies the speed

of an input waveform, thus modifying the timescale of a voice through expansion and

reduction (column 3, lines 3-22).

Claim 2 is limited in part to similar limitations as stated in claim 1, and as

covered by Michel in view of Nejime, and in addition includes a means for mixing the

inputted voice to the output of a voice speed conversion means. The Michel reference

includes a mixing element seen in figure 4 as elements 15b, 15a, and 18 reintroduce a

speech input to the output of a DSP, which can be used for any type of voice

processing, and introduce it to the receiver (figure 4, RCVR). As the speed-conversion

means would have been implemented in Michel's DSP, the mixing inherently takes

place after the speed conversion.

Claim 4 is limited to the speech communication apparatus according to claim 2,

and as covered by Michel in view of Nejime, wherein the sidetone erasure means

comprises means for referring to the voice signal of the calling party which has been

outputted from the voice input device to generate a pseudo sidetone signal, and means

for erasing, from a mixture of the voice signal of the called party which arrives through

the telephone line and a sidetone signal, the sidetone signal using the pseudo sidetone

signal. The primary reference Michel discloses a speech communication apparatus that

has an adaptive filtering unit that is used for removing reflected interference, otherwise

known as sidetone. That adaptive filter, or sidetone erasure means, is described fully in

column 4 under the Adaptive Filter heading and as seen in figure 4, element 33. It has

an input 4 from the DSP that serves as the input speech reference, and as can be seen

the pseudo sidetone is summed with the received signal 3 removing the reflected

interference from the received signal.

Claim 6 is limited to the speech communication apparatus according to claim 2,

and as covered by Michel in view of Nejime, wherein the voice speed conversion means

changes the time scale of the voice signal of the called party. Nejime discloses a

speech speed conversion (i.e. voice speed conversion means) that modifies the speed

of an input waveform, thus modifying the timescale of a voice through expansion and

reduction (column 3, lines 3-22).

Claim 8 is limited to the speech communication apparatus according to claim 2, and as covered by Michel in view of Nejime, wherein the voice speed conversion means changes the time scale of the voice signal of the called party. Nejime discloses a speech speed conversion (i.e. voice speed conversion means) that modifies the speed of an input waveform, thus modifying the timescale of a voice through expansion and reduction (column 3, lines 3-22).

2.   **Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michel in view of Nejime et al. as applied to claims 1-8 above, and further in view of Begeja et al. (US Patent 5,859,908).**

Claim 9 is limited in part to a speech communication apparatus comprising an echo canceller for learning an echo path and optimizing a filter coefficient of an adaptive filter to remove an echo signal and output a telephone receiving signal. The Michel reference describes a speech communication apparatus comprising an adaptive filtering unit that removes reflected interference signals from a telephone receiving signal (column 4, under Adaptive Filter heading) and as shown in figure 4, the adaptive filter 33 is updated through feedback in a manner well known to those skilled in the art to learn an echo path and leaves only the received telephone signal, and Michel also includes a DSP for further voice processing after the echo canceller (column 4 under Digital Signal Processing Block and figure 4). Therefore, it can be seen that the Michel reference discloses all the elements of the claim except a voice speed conversion means. Nejime teaches a device of speech speed conversion (i.e. voice speed conversion), which modifies the speed of input speech without changing the pitch

(column 2, lines 41-48) so that people with hearing disabilities receive a benefit (column 1) from using the phone (column 6, lines 8-11). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the DSP as a voice speed conversion means, and thus enabling hearing-impaired people to use the telephone as taught by Nejime. It is also clear that Michel in view of Nejime discloses all the elements of the claim except voice speed conversion means wherein the voice speed conversion is stopped during a predetermined time period. Begeja teaches that a telephone system using echo canceling and a succeeding speech processor (i.e. voice speed conversion) needs a means to stop a second stage of speech processing (i.e. voice speed conversion) while the echo canceller converges, which prevents the output of an echo canceller that has not converged from interfering with the second stage of speech processing (column 2, first paragraph). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Michel in view of Nejime so that the combination echo canceller and second speech processor had a predetermined delay system to prevent the second speech processor from being used before the echo canceller converged, and thus allowing a better result from the second speech processor as taught by Begeja.

Claim 11 is limited to the speech communication apparatus according to claim 9, and as covered by Michel in view of Nejime and in further view of Begeja, wherein the predetermined time period is a time period during which an echo path is learned in the echo canceller. In addition, Begeja teaches that upon reset additional voice processing should be stopped (i.e. when the echo path is learned in the echo canceller) (column 3,

paragraph 5). Therefore, the voice speed conversion means would be stopped inherently by a predetermined timer so the echo canceller would be given time to learn the echo path upon reset as taught by Begeja

Claim 13 is limited to the speech communication apparatus according to claim 9, and as covered by Michel in view of Nejime and in further view of Begeja, wherein the predetermined time period is an initial time period during which speech communication is started. In addition, Begeja teaches that when the called party answers a call additional voice processing should be stopped (i.e. when speech communication starts) (column 3, paragraph 5). Therefore, the voice speed converting means would be stopped inherently by a predetermined timer when voice speed communication starts as taught by Begeja

Claim 10 is limited in part to a speech communication apparatus comprising an echo canceller receiving a telephone transmitting signal as a reference input signal, generating a pseudo echo signal on the basis of the reference input signal, removing an echo signal which arrives by the pseudo echo signal. The Michel reference comprises an adaptive filter wherein its reference input comes from the telephone transmitting signal inputted through the mic, it generates a pseudo echo from the reference input (column 4, under Adaptive Filter heading), and removes reflected interference, or echo, with the pseudo echo signal with the summer is shown in figure 4, which is all output to the receiver (figure 4, RCVR), and Michel also includes a DSP for further voice processing after the echo canceller (column 4 under Digital Signal Processing Block and figure 4). It is clear that Michel discloses all the elements of the claim except a

voice speed conversion means for subjecting the telephone-receiving signal inputted through the echo canceller. Nejime teaches a device of speech speed conversion (i.e. voice speed conversion), which modifies the speed of input speech without changing the pitch (column 2, lines 41-48) so that people with hearing disabilities receive a benefit (column 1) from using the phone (column 6, lines 8-11). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the DSP as a speech speed conversion means, and thus enabling hearing-impaired people to use the telephone as taught by Nejime. It is also clear that Michel in view of Nejime discloses all the elements of the claim except voice speed conversion means wherein the voice speed conversion is stopped during a predetermined time period. Begeja teaches that a telephone system using echo canceling and a succeeding speech processor (i.e. voice speed conversion) needs a means to stop a second stage of speech processing (i.e. voice speed conversion) while the echo canceller converges, which prevents the output of an echo canceller that has not converged from interfering with the second stage of speech processing (column 2, first paragraph). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Michel in view of Nejime so that the combination echo canceller and second speech processor had a predetermined delay system to prevent the second speech processor from being used before the echo canceller converged, and thus allowing a better result from the second speech processor as taught by Begeja.

Claim 12 is limited to the speech communication apparatus according to claim 10, and as covered by Michel in view of Nejime and in further view of Begeja, wherein

the predetermined time period is a time period during which an echo path is learned in

the echo canceller. In addition, Begeja teaches that upon reset additional voice

processing should be stopped (i.e. when the echo path is learned in the echo canceller)

(column 3, paragraph 5). Therefore, the voice speed conversion means would be

stopped inherently by a predetermined timer so the echo canceller would be given time

to learn the echo path upon reset as taught by Begeja

Claim 14 is limited to the speech communication apparatus according to claim

10, and as covered by Michel in view of Nejime and in further view of Begeja, wherein

the predetermined time period is an initial time period during which speech

communication is started. In addition, Begeja teaches that when the called party

answers a call additional voice processing should be stopped (i.e. when speech

communication starts) (column 3, paragraph 5). Therefore, the voice speed converting

means would be stopped inherently by a predetermined timer when voice speed

communication starts as taught by Begeja.

3.   **Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Michel in**
      view of Nejime in further view of Begeja et al. as applied to claims 9 and 10 above, and
      further in view of Dahlqvist (US Patent 4,727,566).

Claim 15 is limited in part to a speech communication apparatus comprising an

echo canceller for learning an echo path and optimizing a filter coefficient of an adaptive

filter to remove an echo signal and output a telephone receiving signal, and voice speed

conversion means for subjecting the telephone receiving signal outputted by the echo

canceller to voice speed conversion. Michel in view of Nejime in further view of Begeja

as applied to claim 9 above discloses all of these limitations. Therefore, it can be seen

that Michel in view of Nejime in further view of Begeja discloses all the elements of the

claim except a means for judging whether or not the echo signal which cannot be

removed by the echo canceller (a removal error signal) is at not less than a

predetermined level; and a means for stopping a voice speed conversion if it is so.

Dahlqvist teaches a means for measuring an error signal based on threshold (i.e.

predetermined) levels, and outputting a logic "1" when the error threshold is violated or

a "0" when the error threshold is in an acceptable range (column 2, last paragraph

through column 3). Extending the teaching of Begeja relating to enabling the second

processor only after convergence, the delay timers would be eliminated and replaced

with the convergence detector as taught by Dahlqvist when a logic "1" occurs on the

output of the OR circuit (Dahlqvist, figure 1, element EK) thus stopping the voice speed

conversion means and allowing the echo canceller to converge. Also see column 4,

lines 29-33. It would have been obvious to one of ordinary skill in the art at the time of

the invention to modify Michel in view of Nejime in further view of Begeja to include a

means for measuring a removal error signal and judging if it was not less than a

predetermined level and then stopping the voice speed conversion means so that a

user would not notice poor echo canceling cascading into the voice speed conversion

means as taught by Begeja and Dahlqvist.

Claim 16 is limited in part to a speech communication apparatus comprising an

echo canceller receiving a telephone transmitting signal as a reference input signal,

generating a pseudo echo signal on the basis of the reference input signal, removing an

echo signal which arrives by the pseudo echo signal, and outputting a telephone

receiving signal, and voice speed conversion means for subjecting the telephone

receiving signal inputted through the echo canceller to voice speed conversion and

outputting the telephone receiving signal which has been subjected to voice speed

conversion. Michel in view of Nejime in further view of Begeja et al as applied to claim

10 above discloses all of these limitations. Therefore, it can be seen that Michel in view

of Nejime in further view of Begeja discloses all the elements of the claim except a

means for judging or whether or not the echo signal which cannot be removed by the

echo canceller (a removal error signal) is at not less than a predetermined level; and a

means for stopping a voice speed conversion if it is so. Dahlqvist teaches a means for

measuring an error signal based on threshold (i.e. predetermined) levels, and outputting

a logic "1" when the error threshold is violated or a "0" when the error threshold is in an

acceptable range (column 2, last paragraph through column 3). Extending the teaching

of Begeja relating to enabling the second processor only after convergence, the delay

timers would be eliminated and replaced with the convergence detector as taught by

Dahlqvist when a logic "1" occurs on the output of the OR circuit (Dahlqvist, figure 1,

element EK) thus stopping the voice speed conversion means and allowing the echo

canceller to converge. Also see column 4, lines 29-33. It would have been obvious to

one of ordinary skill in the art at the time of the invention to modify Michel in view of

Nejime in further view of Begeja to include a means for measuring a removal error

signal and judging if it was not less than a predetermined level and then stopping the

voice speed conversion means so that a user would not notice poor echo canceling cascading into the voice speed conversion means as taught by Begeja and Dahlqvist.

Conclusion

This is a continuation of applicant's earlier Application No. 09/605,415. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Sinh Tran, can be reached on 703-305-4040. The fax phone numbers for

the organization where this application or proceeding is assigned are 703-872-9314 for

regular communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

4700.

SINH TRAN
SUPERVISORY PATENT EXAMINER

WFB
2/14/05